

## (12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
2 June 2005 (02.06.2005)

PCT

(10) International Publication Number  
**WO 2005/049584 A1**

(51) International Patent Classification<sup>7</sup>: C07D 241/46,  
C25D 3/38

[DE/DE]; Relaisstrasse 100, 68219 Mannheim (DE).  
DAHMS, Wolfgang [DE/DE]; Hemmsdorfer Strasse 53 A,  
13437 Berlin (DE).

(21) International Application Number:

PCT/BP2004/012851

(74) Agent: EFFERT, BRESSEL UND KOLLEGEN;  
Radickestrasse 48, 12489 Berlin (DE).

(22) International Filing Date:

9 November 2004 (09.11.2004)

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EB, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(25) Filing Language:

English

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(26) Publication Language:

English

(30) Priority Data:

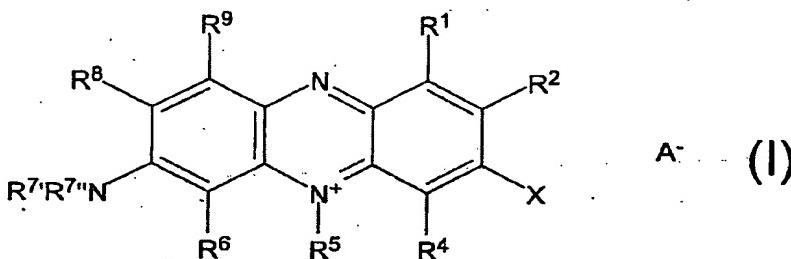
103 54 860.2 19 November 2003 (19.11.2003) DE

(71) Applicant (for all designated States except US):  
ATOTECH DEUTSCHLAND GMBH [DE/DE];  
Erasmusstrasse 20, 10553 Berlin (DE).

Published:  
— with international search report

[Continued on next page]

(54) Title: ACIDIC BATH FOR ELECTROLYTICALY DEPOSITING A COPPER DEPOSIT CONTAINING HALOGENATED OR PSEUDOHALOGENATED MONOMERIC PHENAZINIUM COMPOUNDS



WO 2005/049584 A1

(57) **Abstract:** For manufacturing particularly uniform and mirror bright copper coatings that are leveled and ductile as well as having a relatively high current density, halogenated or pseudohalogenated monomeric phenazinium compounds or a purity at least 85 mole-% and having the general chemical formula (I) are utilized in which R<sup>1</sup>, R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup>, R<sup>6</sup>, R<sup>7</sup>, R<sup>7''</sup>, R<sup>8</sup>, R<sup>9</sup>, X and A<sup>-</sup> have the significations denoted in the claims. The compounds are prepared by diazotizing a suited starting compound prior to halogenating or pseudohalogenating it in the presence of mineral acid, diazotization means and halide or pseudohalide, with the reaction steps being run in one single vessel.